

1/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--REAL STRUCTURE OF THE HIGHER VANADIUM CARBIDE -U-
AUTHOR--(03)-ARBUZOV, H.P., FAK, V.G., KHAYENKO, B.V.
COUNTRY OF INFO--USSR *A*
SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 196-9
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--X RAY DIFFRACTION ANALYSIS, VANADIUM COMPOUND, CARBIDE,
CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0754 STEP NO--UR/0070/70/015/001/0196/0199
CIRC ACCESSION NO--AP0107296
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107296

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANNEALED (1600-1950 DEGREES) SAMPLES OF V CARBIDE WERE STUDIED BY X RAY DIFFRACTION. AT 43-5 AT. PERCENT C CONTENTS, THE SAMPLES HAVE A STRUCTURE OF NaCl TYPE ONLY; FOR C IS GREATER THAN 45 AT. PERCENT, SOME VERY WEAK REFLECTION LINES, THE INTENSITY OF WHICH ARE MAX. FOR THE COMP. VC SUBO TIMES 88, WERE ALSO OBSD. IN THE DIFFRACTION PATTERNS. FOR THE INTERPLANAR DISTANCES OF THE CUBIC UNIT CELL, ALPHA EQUALS 8.334. IN AGREEMENT WITH D. (EXPTL.) EQUALS 5.67, 32 V ATOMS AND SIMILAR TO 28 C ATOMS OCCUR IN THE UNIT CELL OF VC SUBO TIMES 88, SPACE GROUP P4 SUB1 32 (P4 SUB3 32). THE COMPLEMENTARY REFLECTIONS SHOW AN ORDERED DISTRIBUTION OF VACANCIES IN THE SUBLATTICE OF C WITH DOUBLED LATTICE PARAMETER (ALPHA EQUALS 2A SUB1) AND ALSO SLIGHT SHIFTS (0.07-0.08 ANGSTROM) OF V NEAREST OF THESE VACANCIES IN THE DIRECTION OF A VACANCY NODE. THE SAME TYPE OF DIFFRACTION SPECTRUM OF COMPLEMENTARY REFLECTIONS, WAS OBSD. ALSO FOR THE CONCNS. VC SUBO TIMES 82 MINUS VC SUBO TIMES 88.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CDGR OF RUSSIAN LEATHERS AND MEASURES FOR REDUCING IT -U-
AUTHOR--(05)-ARBUZOV, S.V., GORODINSKIY, L.L., MIRONOV, F.V., SUVUROVA,
V.P., SUCHKOV, V.G.
COUNTRY OF INFO--USSR A
SOURCE--KOZH. GBOV. PRGM. 1970, 12(3), 46-51
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--LEATHER, SYNTHETIC OIL, SPECIALIZED COATING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1735 STEP NO--UR/0498/70/012/003/0046/0051
CIRC ACCESSION NO--AP0125356
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125356

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASURES INCLUDE REDUCING THE TEMP. AND DURATION OF MANY OPERATIONS, ESP. FOR BACTERIAL AND IMPORTED RAW HIDES (THE SOFTENING PROCESS WAS ELIMINATED FOR THEM); ELIMINATING NA SUB2 SO SUB3 IN THE ALKALI SOAKING BATH; USING AN OP TYPE EMULSIFIER IN THE DECALCIFYING BATH; USING ACID BLACK S AND FIXER F DURING DYEING AND FIXER F DURING OILING; SALT TREATING INSTEAD OF PICKLING TO HARDEN THE DERMA AND FACE LAYER, ESP. OF BACTERIAL AND IMPORTED STOCKS; LOWERING AIR TEMPS. DURING DRYING; INCREASING THE AMT. OF SYNTHETIC OIL IN MIXTS. WITH FISH OIL; AND COATING WITH ACRYLIC EMULSIONS.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CATALYTIC AND THERMAL REACTIONS OF 2,3-DIMETHYLBUTADIENE AND
ISOPRENE WITH GLYOXYLIC ACID ESTERS -U-
AUTHOR-(03)-KLIMOVA, YE.I., TRESHCHOVA, YE.G., ARBUZOV, YU.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 413-18
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ISOPRENE, PRIMARY ALCOHOL, TIN CHLORIDE, BUTADIENE, ESTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1677 STEP NO--UR/0366/70/006/003/0413/0418
CIRC ACCESSION NO--AP0112671
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112671

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE REACTION OF H SUB2 C:CMECME:CH SUB2 (I) WITH OHCCO SUB2 BU (II) IN THE PRESENCE OF SNCL SUB4 AT ROOM TEMP. GAVE AN ISOMERIC MEXT. CONTG. 30PERCENT DIENE ADDUCT BU 3,4,DIMETHYL, 5,6,DIHYDRO,2H,PYRAN,6,CARBOXYLATE AND 70PERCENT H SUB2 C:CMEC(:CH SUB2)CH SUB2 CH(OH)CO SUB2 BU. THE NONCATALYTIC I-II REACTION AT 130DEGREES GAVE PREDOMINANTLY THE DIENE ADDUCT. ISOPRENE REACTED ANALOGOUSLY. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

172 014 UNCLASSIFIED PROCESSING DATE--3006170
TITLE--CATALYTIC AND THERMAL REACTIONS OF 2,3-DIMETHYLBUTADIENE AND
ISOPRENE AND CHLORAL -U-
AUTHOR-(03)-TRESHCHOVA, YE.G., KLIMOVA, YE.I., ARBUZOV, YU.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 419-22
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ISOMER, SPECTROSCOPIC ANALYSIS, CATALYTIC HYDROGENATION,
CONDENSATION REACTION, BUTADIENE, ISOPRENE, CHLORINATED ORGANIC
COMPOUND, TIN CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1678 STEP NO--UR/0366/70/006/003/0419/0422
CIRC ACCESSION NO--AP0112672
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF H SUB2 C:CMECME:CH SUB2 (I) WITH OHCCCL SUB3 (II) IN THE PRESENCE OF SNCL SUB4 AT ROOM TEMP. GAVE AN ISOMERIC MIXT. CONTG. SIMILAR TO 20PERCENT DIENE ADDUCT 3,4,DIMETHYL,6,(TRICHLOROMETHYL),5,6, DIHYDRO,2H,PYRAN (III) AND SIMILAR TO 80PERCENT H SUB2 C:CMEC(:CH SUB2)CH SUB2 CH(CCL SUB3)OH (IV). THE STRUCTURES OF THESE PRODUCTS WERE CONFIRMED BY CATALYTIC HYDROGENATION AND SPECTROSCOPY. THE THERMAL CONDENSATION OF I WITH II GAVE PREDOMINANTLY III AND ONLY A SMALL AMT. OF IV. ISOPRENE REACTED WITH II ANALOGOUSLY TO GIVE AT 0DEGREES IN THE PRESENCE OF SNCL SUB4 PREDOMINANTLY H SUB2 C:CHC(:CH SUB2)CH SUB2 CH(CCL SUB3)CH AND AT 145-50DEGREES TO GIVE PREDOMINANTLY 4,METHYL,6,(TRICHLOROMETHYL),5,6,DIHYDRO,2H,PYRAN. FACILITY: MOSK. GDS. UNIV. IM. LOMONUSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CATALYTIC ENE SYNTHESIS WITH CARBONYL COMPOUNDS. ADDITION OF
ISOPRENE TO FORMALDEHYDE -U-
AUTHOR-(02)-KLIMOVA, YE.I., ARBUZOV, YU.A. *A*

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(1), 102-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC ORGANIC SYNTHESIS, CARBONYL COMPOUND, TIN
CHLORIDE, ISOPRENE, FORMALDEHYDE, ACETATE, NAPHTHALENE,
QUINONE, POLYNUCLEAR HYDROCARBON, HYDROGENATION, ALCOHOL,
PHTHALATE, BENZOIC ACID, ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1532

STEP NO--08/0020/70/190/001/0102/0103

CIRC ACCESSION NO--AT0100200

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AT0100200
ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. ADDING 10.4 G SNCL SUB4 TO 15 G
PARAFORMALDEHYDE AND 30 ML CHCL SUB3-20 ML ET SUB2 D FOLLOWED BY 20 G
ISOPRENE GAVE AFTER 10 HR IN THE COLD, FOLLOWED BY REMOVAL OF UNREACTED
PARAFORMALDEHYDE 62PERCENT HOCH SUB2 CH SUB2 C(CH SUB2)CH: CH SUB2 (II),
B SUB7 50-1DEGREES, N PRIME20 SUBD 1.4792, D PRIME20 0.8969. I AND AC
SUB2 D IN THE PRESENCE OF PYRIDINE IN 2 DAYS GAVE 81PERCENT
CORRESPONDING ACETATE, B SUB7 53DEGREES, 1.4560, 0.9434, WHICH HEATED
WITH NAPHTHOQUINONE IN C SUB6 H SUB6 6 HR GAVE 80PERCENT II, M.
93-4DEGREES. THE ALC. I AND 1-C SUB10 H SUB7 NCD GAVE THE
NAPHTHYLURETHANE, M. 99-100DEGREES, WHICH WITH 1,4-NAPHTHOQUINONE GAVE
80PERCENT ADDUCT, III, M. 132DEGREES. HYDROGENATION OF I OVER PT GAVE
80PERCENT 3-METHYL-1-PENTANOL, B. 152-3DEGREES, WHOSE
3,5-DINITROBENZOATE M. 37-8DEGREES, AND HYDROGEN 3-NITROPHthalate M.
151-2DEGREES.

UNCLASSIFIED

USSR

UDC: 536.516.2(088.8)

ARBUZOVA, I. A., TITOV, P. V., KHANDROS, L. G.

"Temperature-Sensitive Element"

USSR Authors' Certificate No 330359, Filed 3/07/70, Published 18/04/72
(Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika,
No 4, 1973, Abstract No 4.32.800P, by V. S. K.).

Translation: A temperature-sensitive element (TE) made of a bimetal is suggested. The sensitivity of the TE is limited by the difference in coefficients of thermal expansion of the metals or alloys and, in the low temperature area, is reduced due to the decrease in coefficients of thermal expansion of metals at low temperatures. In order to increase the sensitivity, accuracy and range of application, it is suggested that elements be made of materials which undergo martensite conversion in both directions as the temperature changes, for example of a Cu-Al-Ni alloy with 12-16% Al and 0-10% Ni. By varying the chemical composition of the Cu-Al-Ni alloy, the hysteresis of the martensite conversion can be changed, as can the martensite point. The working are of the TE can thus be varied from -200 to +200° C. To assure deformation of the TE as it is cooled, it is equipped with a directed load unit, allowing the TE to be used in repeated heating and cooling cycles. 1 figure.
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USSR

UDC 539.67

ARBUZOVA, I. A., BAVILYUK, V. S., and KHANDROS, L. G., Institute of Metal Physics, Academy of Sciences UkrSSR

"Study of the Change in Internal Friction in Cu - Al - Ni Alloys Over the Temperature Range of the Formation of Elastic Martensite Crystals"

Kiev, Metallofizika, No 32, 1970, pp 100-104

Translation: The existence of phase equilibrium in martensite transformation in the Cu - Al - Ni alloy gives reason to believe that an increased value of internal friction should be observed in a two-phase region. Internal friction in the Cu - Al - Ni alloy with a martensite point of about 60° over the temperature range 120 to 160° C was studied by the torsional vibration method ($\nu = 1$ cps). It was shown that stable peaks of internal friction are observed over the temperature range of direct and inverse martensite transformation.

The maximum value of internal friction on the curves obtained corresponds to approximately 50% of the transformed phase. An increase in the deformation amplitude leads to an increase in internal friction over the temperature range of the $\beta_1 \rightarrow \gamma'$ transformation. Bibliography: 6 entries, 5 illustrations.

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1/2 040 UNCLASSIFIED PROCESSING DATE--02 OCT 70
TITLE--SYNTHESIS, STRUCTURE, AND BEHAVIOR OF POLYMERS OF THE METHYL
ISOPRENECARBOXYLATE OBTAINED BY ANIONIC AND RADICAL POLYMERIZATION --G--
AUTHOR--(05)--ARBUZOVA, I.A., YEFREMOVA, V.N., YELISEYEVA, A.G., VIKITIN,
V.N., SIDOROVICH, A.V. *A*
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 697-704
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ISOPRENE, CARBOXYLIC ACID ESTER, POLYMERIZATION, LOW
TEMPERATURE EFFECT, ORGANOLITHIUM COMPOUND, POLYMER STRUCTURE, PHASE
TRANSITION, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0311

STEP NO--UR/0459/70/012/003/0697/0704

CIRC ACCESSION NO--AP0111505

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANIONIC POLYMN. OF H SUB2 C:CHCME:CHCO SUB2 ME (I), CARRIED OUT AT NEGATIVE60DEGREES TO NEGATIVE70DEGREES IN PHME SOLN. CONTG. 0.02 MOLE-L. BULI GAVE 80PERCENT I POLYMER (II) IN LESS THAN OR EQUAL TO 60 MIN. THE FREE RADICAL BULK POLYMN. OF I IN THE PRESENCE OF 0.2 WT. PERCENT (ON I) BZ SUB2 O SUB2 REQUIRED 90 HR AT 60-80DEGREES TO GIVE 75-8PERCENT I POLYMER (IIA). HEATING THE AMORPHOUS IIA CONVERTS IT TO A CRYST. FORM. I IS CRYST. AT ROOM TEMP. BOTH II AND IIA HAVE A PHASE TRANSITION POINT AT 90DEGREES AND GLASS POINT AT 20DEGREES. BY IR SPECTROSCOPY THEY BOTH HAVE 1,4 TRANS CONFIGURATION.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--PHOTOELASTIC PROPERTIES OF CROSSLINKED VINYL AROMATIC COPOLYMERS
-U-
AUTHOR--(03)--ZLOTNIKOV, M.S., ARBUZOVA, I.A., KUVSHINSKIY, YE.V.
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(1), 3-9 A
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELASTIC MODULUS, POLYSTYRENE RESIN, ETHYLENE GLYCOL, ACRYLATE,
POLYMER CROSSLINKING, PHOTOELASTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1898

STEP NO--UR/0374/70/006/001/0003/0009

CIRC ACCESSION NO--AP0112878

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CERTAIN PHYS. CONSTS. (SOFTENING TEMP., ELASTICITY MODULUS, BIREFRINGENCE CONSTS.) OF POLYSTYRENE, POLY(CHLOROSTYRENE), OR POLY(VINYLTOLUENE) CHANGE LINEARLY OR IN A NEAR LINEAR MANNER WITH INCREASING CROSSLINKING AGENT CONCN. (ETHYLENE GLYCOL DIMETHACRYLATE). AN ATTEMPT WAS MADE TO CORRELATE THE PHOTOELASTICITY OF THESE POLYMERS WITH THE NOMINAL NO. OF CROSSLINKS PER UNIT VOL. (N SUBG). HOWEVER, N SUBG NOT EQUAL TO $E-3KT$ (E IS THE ELASTICITY MODULUS, K IS THE BOLTZMANN CONST. AND T IS THE SOFTENING TEM. IN DEGREE SK). THE PHOTOELASTIC PROPERTIES OF THESE POLYMERS COULD NOT BE CORRELATED WITH ANY KNOWN GAUSSIAN OR NON GAUSSIAN THEORY OF POLYMER CROSSLINKING.

UNCLASSIFIED

USSR

UDC 576.851.48/.49.06.089.3

ARBUZOVA, V. A., Institute of Epidemiology and Microbiology imeni Pasteur

"Specificity and Sensitivity of Tissue Culture in Detecting the Enteropathogenic Properties of Enterobacteriaceae"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972, pp 72-77

Abstract: More than 600 strains of different forms of Enterobacteriaceae (agents of intestinal infections such as shigellas, salmonellas, etc., bacteria regarded as potential causative agents, and so-called normal intestinal bacilli) were tested in 11 primary and transplantable tissue cultures of different origin to determine the usefulness of these cultures as specific and sensitive tests of the enteropathogenicity of the microorganism under study. Sereny's Karabaconi-junctival test, intranasal and enteral infection of white mice served as the control. All the agents of acute intestinal infections, regardless of their species of genus, were able to reproduce in the monolayer tissue cultures, demonstrating the universality of this model as a means of detecting the pathogenicity for man of microorganisms of undetermined etiology.

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1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--RAMAN AND INFRARED ABSORPTION SPECTRA OF SOME BUTOXY-SILANES -U-

AUTHOR--OZOLINS, L., KOVALEV, I.F., ARBUZOVA, V.A., SHEVCHENKO, I.V.,
VORONKOV, M.G.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. NESTIS, KIM. SER. 1970, (1), 47-51

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RAMAN SPECTRUM, IR SPECTRUM, ORGANIC SILANE, ORGANIC OXYGEN
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1999/0440

STEP NO--UR/0464/70/000/001/0047/0061

CIRC ACCESSION NO--AP0107046

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107046

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RAMAN AND IR SPECTRA OF ME SUB3 SI(OBU) (I), ME SUB2 SI(OBU) SUB2 (II), MESI(OBU) SUB2 (III), SI(OBU) SUB4 (IV), SI(SEC-BUO) SUB4 (V), AND SI(ISO-BUO) SUB4 (VI) WERE MEASURED. FREQUENCIES, INTEGRAL INTENSITIES, HALF BANDWIDTHS, AND DEGREES OF DEPOLARIZATION OF THE RAMAN LINES ARE TABULATED. THE SCATTERING COEFFS. IN THE SCALES 58 PRIME2 PLUS 7G PRIME2 (S) AND 58 PRIME2 PLUS 13G PRIME2 (R), THE TRACE, AND THE ANISOTROPY OF THE POLARIZABILITY TENSOR WERE CALCD. ESTN. OF FORCE CONSTS. FOR III AND IV WAS MADE. THE DISPERSION OF THE REFRACTION COEFF. WAS STUDIED IN II, V, AND VI AND THE ABS. RAMAN SCATTERING CROSS SECTIONS FOR THE STOKES WAVES NU SUB3 (SI-O) WERE EVALUATED. THE CORRECTED FREQUENCIES, HALF-BANDWIDTHS, AND ABS. INTENSITIES OF SELECTED IR VIBRATIONS WERE OBTAINED BY NUMERICAL BAND SEPN. THE EFFECT OF SUBSTITUENTS ON THE STUDIED PARAMETERS IS DISCUSSED.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--AN EXPERIMENTAL INVESTIGATION OF THIMBLE IONIZATION CHAMBERS FOR
ROENTGEN AND GAMMA RADIATION -U-
AUTHOR--ARCHAKOV, A.A., VINOKUROVA, Z.A., LAPCHUK, T.V.
COUNTRY OF INFO--USSR A
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 3, PP 60-65
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--IONIZATION CHAMBER, PLASTIC, RADIATION DOSIMETER, X RAY
MEASUREMENT, GAMMA SURVEY METER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/1678 STEP NO--UR/0241/70/015/003/0060/0065
CIRC ACCESSION NO--AP0101733
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101733

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE RESULTS OF EXPERIMENTAL INVESTIGATION OF THIMBLE IONIZATION CHAMBERS (VOLUME OF 2 CM PRIME3) PREPARED FROM DIFFERENT PLASTICS. IT IS SHOWN THAT THE RELATION BETWEEN THE SENSITIVITY OF THE CHAMBERS AND THE QUALITY OF RADIATION IS DETERMINED BOTH BY THE MATERIAL FROM WHICH THE CHAMBER (EXTERNAL ELECTRODE) IS MADE AND THE MATERIAL OF THE INTERNAL ELECTRODE. THIS ENABLES TO DECREASE MARKEDLY THE ENERGY DEPENDENCE BY SPECIAL CHOICE OF THE DESIGN. SIMILARLY, ONE COULD DESIGN INDIVIDUAL DOSIMETERS BASED ON THE REDISTRIBUTION OF THE CHARGE ON TWO CONDENSERS THROUGH THE IONIZATION VOLUME, FOR A WIDE RANGE OF EXPOSURE DOSES, WITH A SIGNIFICANT MECHANICAL RESISTANCE AND ENERGY DEPENDENCE ERROR OF 10PERCENT. THEORETICAL CALCULATION OF THE CHARACTERISTICS OF THE CHAMBERS IS VERY DIFFICULT, IN VIEW OF WHICH WHEN DESIGNING THE DEVICES THE CHOICE OF ELEMENTS OF THE DETECTOR IS EXPEDIENT TO CARRY OUT ON THE BASIS OF EXPERIMENTAL DATA.

UNCLASSIFIED

USSR

UDC 621.357.1.035(088.8)

NOVOSELOV, V. A., NELIDOV, V. B., MITROFANOV, V. S., ARCHAKOV, V. P.,
EPEL'FEL'D, F. I., SOLOVEY, L. F., PETROVSKII, P. P.

"Device for Distribution of Amalgams"

USSR Author's Certificate No 295736, filed 30/09/69, published 8/04/71.
(Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract
No 4L245 from the resume).

Translation: A device is patented for distribution of amalgam in scrubber separators, consisting of a perforated grid with a circular tip, separating the upper plane of the grid into central and peripheral zones with apertures for distribution of the amalgam and output of hydrogen, differing in that in order to improve the flow of amalgam, eliminate wear of the fitting and prevent hydraulic shock, the apertures in the peripheral zone are made in the form of slits covered with a screen, while the apertures for passage of amalgam are located at the points of intersection of slots made on the lower plane of the grid and forming projections, preventing blockage of the apertures with granules of the packing.

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Corrosion

USSR

UDC 620.193.55

ALEKSEYEV, V. I., ARCHAKOV, YU. I., BOGOLYUBSKIY, S. D., and SHVARTSMAN, L. A.

"Incubation Period of Hydrogen Corrosion of Carbon Steel"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 735-737

Abstract: This article contains the results of a study of the incubation period of hydrogen corrosion of carbon steel. From the data on the variation of the density of steel 45 as a function of the time under the effect of hydrogen and also the distribution of the relative carbon content in U10A steel after holding in hydrogen for 6, 10, and 14 hours it is concluded that the time before the beginning of hydrogen corrosion is 14-21 hours, which agrees satisfactorily with the results calculated by the earlier derived empirical equation. The mechanism of the extremal nature of the change in density $\Delta\rho$ as a function of the holding time in hydrogen is discussed. During a 14-hour period the processes of shrinkage and swelling of the steel develop predominately in the thin surface layer. However, when holding for 21 hours the swelling not only greatly exceeds the contraction but it also extends to a significant depth.

It is concluded that the incubation period of hydrogen corrosion can be subdivided into two steps. In the first step there is surface decarburization

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USSR

ALEKSEYEV, V. I., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70; pp 735-737

and accumulation of methane in the micropores of the steel to pressures leading to small, probably elastic deformation of the matrix. The plastic properties of the steel practically do not change. On reaching the critical pressure, intense growth of the pores begins, controlled, probably, by the laws of elasticity and plasticity and also by the rate of methane accumulation in the micropores. The plastic properties of the steel become worse, and this is considered the second step of the incubation period. As a result of growth and merging of the micropores, microcracks are formed, increasing the hydrogen penetrability of the steel and its contact surface with the hydrogen atmosphere, leading to sharply intensified decarburization. Thus, the swelling of steel 45 after holding in hydrogen at 500° and 100 technical atmospheres up to 14 hours is small, but holding it for 21 hours leads to a significant decrease in density and plasticity. This can be related to reaching the critical methane pressure in the pores during this time, leading to accelerated crack development and decarburization.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INTERACTION OF HYDROGEN WITH STEEL KH18N10T AT INCREASED
TEMPERATURES AND PRESSURES -U-
AUTHOR-(02)-ARCHAKOV, YU.I., ZARETSKAYA, L.V. *A*
COUNTRY OF INFO--USSR
SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (3), 64-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--STAINLESS STEEL, ALLOY DESIGNATION, HYDROGEN, GAS CONTAINING
METAL, METAL CONTAINING GAS, SOLUBILITY, METAL QUENCHING/(U)KH18N10T
STAINLESS STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1676 STEP NO--UR/0129/70/000/003/0064/0066
CIRC ACCESSION NO--AP0118654
UNCLASSIFIED

2/2 024

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF H IN STEEL KH18N10T AT 300-900DEGREES UNDER PRESSURES 20-600 KG-CM PRIME2 WAS STUDIED BY USING SPECIMENTS, DIAM. 10 AND LENGTH 20 MM, WHICH WERE PREVIOUSLY AUSTENITIZED. IN ORDER TO PREVENT THE RELEASE OF H FROM STEEL DURING SLOW COOLING UNDER ATM. PRESSURE, A SPECIAL AUTOCLAVE WAS SUED IN WHICH SPECIMENS COULD BE QUENCHED UNDER PRESSURE AT THE RATE 50DEGREES-SEC. THE AUTOCLAVE AND THE METHOD OF SATN. WITH H ARE DESCRIBED BY A., ET AL. (1959; 1967). UNDER GIVEN EXPTL. CONDITIONS THE SOLY. OF H WAS PROPORTIONAL TO THE SQUARE ROOT OF THE PRESSURE OF H. AT 300-400DEGREES THE SOLY. OF H WAS SOMEWHAT HIGHER THAN AT HIGHER TEMPS. THE SOLY. OF H INCREASED EXPONENTIALLY WITH INCREASED TEMP. THE HEAT OF SOLN. AT 300-900DEGREES WAS 2800 PLUS OR MINUS 960 CAL-MOLE. THE FOLLOWING EXPTL. EQUATION IS GIVEN FOR THE DETN. OF H CONCN. (S) UNDER THESE ESPTL. CONDITIONS: $S = 14.4 E^{-13800 \text{ PLUS OR MINUS } 960 - 2RT}$ PH PRIME0.5, WHERE PH IS THE PRESSURE OF H. FACILITY: VSES. NAUCH.-ISSLED. INST. NEFTEKHIM. PROTESSOV, LENINGRAD, USSR.

UNCLASSIFIED

Acc. No. **0043733**

Abstracting Service: 5/70 Ref. Code:
INTERNAT. AEROSPACE ABST. **UR0226**

A

A70-23123 # Soldering of the boron carbonitride with high melting-point metals (Paika karbonitrida bora s tugoplavkimi metallami). G. G. Archakova, A. L. Burykina, O. V. Evtushenko, and E. M. Frshedromirskaja (Akademiiia Nauk Ukrainskoi SSR, Institut Problem Materialovedeniia, Kiev, Ukrainian SSR). Poroshkovaia Metallurgiiia, vol. 10, Jan. 1970, p. 52-55. In Russian.

Development of a high-temperature soldering technique for soldering the boron carbonitride with the niobium, molybdenum and tungsten, using the molybdenum disilicide as a solder. A study is made of the electrical resistance and gas tightness up to 10 atm of this soldered joints.

Z.W.

AIS

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REEL/FRAME
19770139

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USSR

A

ARCHAKOVA, G. G., BURYKINA, A. L., YEVTUSHENKO, O. V., and PRSHEDROMIRSKAYA, YE. M., Institute for Problems of Material Science, Academy of Sciences UkrSSR

"Soldering of Carbonitride With Refractory Metals"

Kiev, Academy of Sciences Ukr SSR, Poroshkovaya Metallurgiya, No 1, Jan 70.
pp 52-55

Abstract: A method was developed for boron carbonitride soldering with refractory metals (niobium, molybdenum, and tungsten) using molybdenum disilicide as a refractory solder. In contrast to a previously developed soldering technique in an induction furnace in an argon medium, the soldering was accomplished in a vacuum. In certain cases a molybdenum powder (5 to 7%) was added to the refractory solder in order to decrease the temperature. A schematic diagram of the soldering setup is given and the soldering technique is described. Microstructure photographs of different fusion samples are given, and data on the electrical resistance of soldered boron carbonitrides with three metals are presented. The gas permeability of samples with pressure drops up to 10 atm was investigated. The experimental setup is shown schematically. The results obtained show that the soldering technique ensures the conservation of the electric resistance of

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USSR

ARCHAKOVA, G. G., et al, Poroshkovaya Metallurgiya, No 1, Jan 70, pp 52-55

soldered elements within the limits of 10^{13} ohm/cm and a gas density of the soldered elements from 1 to 10 atm. Orig. art. has: 3 figures, 2 tables, and 2 references.

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USSR

UDC 621.317

ARCHYULIS, A. P. *A*

"Determination of the Economic Efficiency of Radio Measuring Equipment"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry),
vyp. 5, Moscow, 1970, pp 83-88 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract
No 9A134)

Translation: This article contains an investigation of the problems of determining the economic efficiency of radio metering equipment based on a standard procedure considering the operating characteristics of the equipment in the planning and design stage and also scientific-research and experimental design work.

1/1

USSR

UDC 621.396.677(02)

ARDAB'YEVSKIY, A. I., VOLKOV, O. A., VOSKRESENSKIY, D. I., GOSTYUKHIN, V. L.,
GRANOVSKAYA, R. A., GRINEVA, K. I., KRITSYN, V. A., MYAKISHEV, B. YA., FILIPPOV,
V. S., CHEBYSHEV, V. V.

"Microwave Antennas and Devices. Calculation and Design of Antenna Arrays
and their Radiating Elements. Textbook for Students at the Radiotechnical
Specialized Institutions of Higher Learning"

Antenny i ustroystva SVCh. Raschet i proyektirovaniye antennykh reshetok i ikh
izluchayushchikh elementov. Uchebn. posobiye dlya stud. radiotekhn. spets. vyzov
(cf. English above), Moscow, Soviet Radio, 1972, 320 pp, ill., 75 k. (from RZh-
Radiotekhnika, No 6, Jun 72, Abstract No 5B32K)

Translation: Methods of calculating the basic parameters of antenna arrays
with electric rocking of the radiation pattern and frequency and commutation
methods of controlling the radiation pattern are discussed. A study is made
of the structure of the optimal arrays with Dolf-Chebyshev distribution, the
design of irised-wave guide and horn arrays and also methods of calculating
the array elements: dielectric, rod, spiral, horn and director antennas.

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USSR

UDC 77

SAMOYLOVICH, D. M., ARDASHEV, I. V., RYABOVA, R. V.

"Concerning the Formation of a Latent Photographic Image in Very Fine-Grained Photoemulsions"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti (International Congress on Photographic Science, Moscow, 1970, Nature of Photographic Sensitivity -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, pp 329-332 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1321)

Translation: The chemical stabilization of very fine-grained emulsions by Ag^+ ions is investigated. The calculation shows that in one microcrystal of such an emulsion with a thickness of $\sim 25 \text{ m}\mu$ there is $\sim 10^{-2}$ mobile Ag^+ ions but, considering their concentration on the surface, not more than one ion. The formation of more than one Ag atom in the photolysis of this microcrystal is, therefore impossible and only an increase in the surface concentration of Ag^+ can lead to the appearance of photographic sensitivity in the microcrystal. One of the methods for increasing the concentration of mobile Ag^+ ions is synthesis

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SAMOYLOVICH, D. M., et al, Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti, no place of publication given, Vneshtorgizdat, no year given, pp 329-332

with a large excess of Ag^+ ions: experiments showed that a similar synthesis in an excess of Br^- ions or in a small excess of Ag^+ ions does not lead to the appearance of photographic sensitivity of such small microcrystals, but with an increase in the excess of Ag^+ above a certain threshold, the sensitivity sharply rises. It was shown that Ag absorbed on the microcrystal from without is in ionic form and is separated by washing. The dimensions of the Ag-groups producing a considerable change in photographic properties of the microcrystal under these conditions (fogging, desensitization), including the presence of gold, were evaluated. A. L. Kartuzhanskiy.

USSR

UDC 629.78.018.1

ARDASHEVA, M. M., IL'INA, S. A., LODYGIN, N. A., MAYKAPAR, G. I.,
PERVUSHIN, G. Ye., TOLMACHEVA, K. F.

"Use of Fusible Temperature Indicators to Measure Heat Fluxes to Models in
Wind Tunnels"

Uch. zap. Tsentr. Aero-gidrodinam. Inta [Scientific Writings of Central
Aero-Hydrodynamics Institute], Vol 3, No 1, 1972, pp 77-82, (Translated from
Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.171
from the Resume).

Translation: Temperature-indicating countings are widely used in studying
heat transfer in aerodynamic experiments. A method is described for study-
ing fusible heat indicators which allows the temperature and temperature in-
terval of melting of the temperature indicators to be determined as a func-
tion of pressure and heating rate. The rate of sublimation of the tempera-
ture indicators is determined at various pressures. The use of this method
has allowed the All-Union Scientific Research Institute of Luminophors and
high-purity substances to develop fusible temperature indicators suitable
for investigation of heat transfer to flight vehicle models. Model photo-
graphs produced in various wind tunnels are presented as examples. 7 Figures;
1 Table; 4 Biblio. Refs.

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1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INFLUENCE OF THE TITRANT SOLVENT DURING ACID BASE TITRATION OF
NONAQUEOUS SOLUTIONS -U-
AUTHOR--(03)-BYKOVA, L.N., ARDASHNIKOVA, V.D., BLAGODATSKAYA, Z.G.
COUNTRY OF INFO--USSR
SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(5), 1155-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TITRATION, SOLVENT ACTION, METHANOL, PROPANOL, BENZENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1953 STEP NO--UR/C080/70/043/005/1155/1157
CIRC ACCESSION NO--AP0132214
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132214

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAX. DECREASE IN THE BASIC LIMIT OF THE ACIDITY SCALE OF THE SOLVENT WAS OBSERVED ON ADDING MECH, WHICH HAS MORE PROMINENT ACID PROPERTIES COMPARED TO ISO-PROH AND TERT-BUOH. C SUB6 H SUB6 ADDN. DOES NOT DECREASE THE BASIC LIMIT OF THE ACIDITY SCALE OF THE SOLVENT UP TO 60PERCENT (VOL.-VOL.). FOR TITRATING QUARTERNARY AMMONIUM SALTS THE USE OF MIXED SOLVENT CONTG. C SUB6 H SUB6 AND AN ALC. WITH LESS ACIDIC PROPERTIES WAS SUGGESTED.

UNCLASSIFIED

USSR

UDC 632.95

ARDATOVA, A. N., and NIKOLAYEV, A. V.

"Determination of Granosan in Grain"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Transactions of the Second All-Union Conference on the Study of Pesticide Residues and Prevention of Their Contamination of Food Products, Fodder and the External Environment), Tallinn, 1971, pp 265-266 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N505 by T. A. Belyayeva)

Translation: Some 20-40 g of grain are treated twice with 40-60 ml 2.5 N HCl (acid), 15 min. each time with shaking, and filtered. EthHgCl is extracted from solution with 3 x 10 ml CHCl₃. The extracts are filtered and the total filtrate volume is brought to 50 ml. Ten milliliters of acetate buffer (pH 4.5) and 5 ml of distilled water are added to 5 ml of extract and titrated with an 0.001 percent solution of dithizone.

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A

USSR

UDC 621.385.632

ARDELYAN, N.G., MILYUTIN, D.D., SHTERN, V.A.

"Some Results Of An Experimental Investigation Of The Operation Of A TWT In A Regime Of Simultaneous Amplification Of Two Harmonic Signals Of Different Frequencies"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 3, pp 141-144 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A143)

Translation: An account is given of the results of an experimental investigation of the operation of a TWT with the delivery at the input of two harmonic signals with frequencies f_1 and f_2 . On exposure of such signals to the TWT, predominant amplification of one of them was not observed for a detuning of the frequency $\Delta f = 15$ MHz. Under equal conditions the signals with frequencies f_1 and f_2 were amplified equally. With equality of the input powers of the signals f_1 and f_2 , the powers of the signals of these frequencies at the output of a TWT were equal, and the powers of the combinative components of the second and third order were also equal. It is possible to compare the power of the combinative components with the power of the basic signals. The suppression coefficient with unequal powers of the input signal depends on the voltage in the decelerating system of the device, which permits it to be controlled. 6 ill. 3 ref. G.B.

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USSR

UDC 621.385.632

ARDELYAN, N.G., MILOTIN, D.D.

"Phase Characteristics Of A Type UV-230 TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 146-149 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A140)

Translation: The results are presented of an experimental investigation of the phase characteristics of a Type UV-230 TWT which is used in relay apparatus. Several models of tubes were investigated which made it possible to judge the recurrence of characteristics. The dependences were also measured of the phase of the output signal, on the power supply voltage and the input power. The slope of the dependence of the phase characteristic on the voltage of the decelerating system amounts to $0.9 \div 1.2$ degree/volt, for the anode voltage $0.1 \div 0.3$ degree/volt, and for the voltage of the focusing electrode $0.95 \div 1.1$ degree/volt. With a change of the voltage in the decelerating system corresponding to a $\pm 70^\circ$ phase change, the output power is changed by ≤ 1 db. The maximum deviation of the phase-frequency characteristic from the linear amounted to $\pm [5 + 20]^\circ$. The conversion for AM into FM for various tube models varied within the limits of 6--10 degree/db. With an input power close to the saturation power, the conversion factor has an almost constant magnitude. With an increase of the input power to a magnitude at a 5--7 db higher level of saturation, the conversion factor is changed significantly. 8 ill. 6 ref. G.B.

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EMPIRICAL METHOD OF IDENTIFYING THE STRUCTURE OF ONE DIMENSIONAL
NONLINEAR CONTROLLED PLANTS WITH AN EXTREMAL CHARACTERISTIC -U-
AUTHOR-(03)-GUGUSHVILI, A.SH., ENDELADZE, D.L., AREFYEV, B.O.
COUNTRY OF INFO--USSR
SOURCE--AVTOMATIKA, VOL. 15, MAR.-APR. 1970, P. 43-47
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--INDUSTRIAL AUTOMATIC CONTROL, NONLINEAR AUTOMATIC CONTROL,
MATHEMATIC MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1807 STEP NO--UR/0102/70/015/000/0043/0047
CIRC ACCESSION NO--AP0135372
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135372

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF AN EMPIRICAL METHOD OF IDENTIFYING THE STRUCTURE OF PLANTS WHOSE MATHEMATICAL MODEL IS COMPOSED OF AN APERIODIC COMPONENT, A NONLINEAR COMPONENT, AND A DELAY COMPONENT CONNECTED IN SERIES. ANALYTICAL EXPRESSIONS FOR THE OUTPUT FUNCTIONS OF SEVERAL PLANT VERSIONS ARE DERIVED.

UNCLASSIFIED

Acc. Nr.

AA0108179

Abstracting Service:
CHEMICAL ABST. 6-10

Ref. Code
UR 0482

3

A

135550m Tool steel. Zaichenko, S. S.; Polushkin, N. A.;
Kalmykov, Yu. D.; Chichkanov, A. I.; Shevchenko, V. L.;
Biryukova, V. N.; Arefev, B. V. U.S.S.R. 260,900 (Cl. C 22c),
06 Jan 1970, Appl. 25 Jul 1968; From *Obkrytiya, Izobret., Prom.*
Obraztsy, Tovarnye Znaki 1970, 47(4), 81. Tool steel contg.
lower amts. of scarce materials consisted of: C 0.50-0.65, Si
0.60-0.90, Mn 0.20-0.40, Cr 6.5-8.0, Mo 1.1-1.5, W 0.7-1.1,
V 0.10-0.25, Ti 0.05-0.15%, Fe and impurities the remainder.
MSCL

REEL/FRAME

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19891845

USSR

UDC 534-8

AREF'YEV, I. M., ZAYTSEV, G. I., KRIVOKHIZHA, S. V., OZHOGIN, YA. P.,
SHREYNER, B. YA.

"Dispersion of the Velocity of Sound in Aniline-Nitrobenzene Solutions"

Kratk. soobshecheniya po fiz. (Brief Communications on Physics), 1970, No 7,
pp. 37-41 (from RZh-Fizika, No 12(II), Dec 70, Abstract No 12Zh805)

Translation: The dispersion of sound in an aniline-nitrobenzene solution was investigated to observe its negative value, which is possible for associated solutions. At a temperature of 20°C the velocity of hypersound at a frequency of $5.5 \cdot 10^9$ Hz was determined in terms of the displacement of the Mandelstam-Brillouin components in the spectra of the thermal scattering of light which was excited by an He-Ne laser at an angle of 90°. The velocity of ultrasound was measured at a frequency of $2.8 \cdot 10^6$ Hz. It turned out that negative dispersion is absent in the solution. V. Ye. Gordeyev.

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USSR

UDC 021.36:538.4

AREF'YEV, K. M., and PALEYEV, I. I. (deceased)

"Principles of Thermoelectronic and Magneto-Hydrodynamic Energy Conversion"

Osnovy Termoelektronnogo i Magnito-Gidrodinamicheskogo Preobrazovaniya Energii [English Version Above], Moscow, Atomizdat Press, 1970, 215 pp

Translation of Introduction: The liberation of heat accompanies such processes as combustion, nuclear reactions, and the absorption of radiant energy. Thermoenergy is the energy of chaotic motion of the molecules of which a substance consists. Many industrial processes require thermoenergy, but electrical energy is most convenient, easily transported, and converted to other forms.

The method of conversion of thermoenergy to electrical energy involving a boiler, steam turbine, and electric machine generator (or gas turbine and generator, or engine and generator) is widely known and generally used. The turbine or engine contains rotating or reciprocating parts which are subjected to significant mechanical loads. These parts cannot operate (withstand loads) at high temperatures which can be reached by non-moving, unloaded parts, which are also easier to cool. Due to the insufficiently

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Oxnovy Termoelektronnogo i Magnito-Gidrodanimeshcheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

high initial temperatures, the efficiency of large steam turbine thermopower stations generally does not exceed 40-42%, even in the best models. It can be increased by 2-3% by improving equipment and improving operation. Significant increases in efficiency can be achieved only by great increases in the initial temperature of the working fluid.

Higher initial temperatures can be used with plasma methods of direct conversion of thermoenergy to electrical energy: the magneto-hydrodynamic and thermoelectronic (thermo-emission) methods. In the magneto-hydrodynamic method, the thermoenergy is first converted to the kinetic energy of a stream of electrically conducting gas (plasma), moving in a strong magnetic field. As the plasma cuts the magnetic lines of force, and electromotive force is induced in it, as in the windings of an ordinary machine generator, causing an electrical current to flow in the external circuits. As we see, the magnetohydrodynamic method is not in the true sense a method of direct conversion of thermoenergy to electrical energy. It should more properly be called a machineless method of production of electric energy, since no

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Osnovy Termoelektronnogo i Magnito-Gidrodanimeshcheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

machine electric generator is required. However, the energy conversion is performed in a single device, immediately after liberation of heat and heating of the gases. There are no rotating or moving parts, and the initial temperatures are high (up to 2,500°K and higher). This results in increased efficiency. The temperature of the gases leaving the magneto-hydrodynamic generator must still be high, since otherwise the gases lose their conductivity. If the heat of these gases, is used, for example, in a steam generator (steam boiler and turbine), gas turbine, etc., high efficiency for the entire combined unit can be achieved. Thus, as published materials show, the efficiency of thermoelectric stations can be increased by approximately 10%.

In the thermoelectronic method, electric current is produced by emission of electrons from a cathode heated to high temperatures. The voltage in the external circuit arises due to the difference in the work functions of the cathode and anode--the contact potential difference. The thermoelectronic

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Oxnovy Termoelektronnogo i Magnito-Gidrodanimesheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

method, like the magneto hydrodynamic method, can be used to convert nuclear energy to electrical energy.

The interelectrode gap in a thermoelectronic converter is generally filled with plasma-ionized cesium vapors. The plasma is also used in magneto-hydrodynamic generators. The operation of the two types of plasma converters has a great deal in common: the same processes occur, thermoelectronic emission, ionization, etc. However, there are also significant differences: in the magneto-hydrodynamic generator, the plasma moves in a magnetic field, and electromagnetic induction is used; in the thermoelectronic generator, the magnetic field and motion of the plasma are absent. In this book, we study thermoelectronic and magneto-hydrodynamic generators in consideration of the specific features of their operation.

The book is designed to provide a preliminary familiarization with the problem as a whole; many problems (particularly physical problems) are not presented with sufficient completeness and strictness; the design data on

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Osnovy Termoelektronnogo i Magnito-Gidrodanimeshcheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

converters, detailed information on experimental results of their operation, etc., are omitted. The purpose of the book is to present the general concepts of the operation of plasma power converters in brief form.

The bibliography presented in the book is by no means complete, since a large number of works on problems of thermoelectronic and magneto-hydrodynamic energy conversion, plasma physics, etc., have been published recently. The flow of information increases continually. Therefore, the results of many investigations are presented in this book only as illustrations.

The book is divided into two sections. The first section analyzes the operation of thermoelectronic generators, while the second section studies magneto-hydrodynamic generators. Readers interested only in the second section should familiarize themselves first with Chapters I and IV from the first section. These Chapters study problems of thermoelectronic emission, ionization of gases, and plasma physics.

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Osnovy Termoelektronnogo i Magnito-Gidrodanimeshcheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

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AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Oxnovy Termoelektronnogo i Magnito-Gidrodanimeshcheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Oxnovy Termoelektronnogo i Magnito-Gidrodanimeshskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

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USSR

AREF'YEV, K. M., and PALEYEV, I. I. (deceased), Osnovy Termoelektronnogo i Magnito-Gidrodinamicheskogo Preobrazovaniya Energii, Moscow, Atomizdat Press, 1970, 215 pp

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USSR

AREF'YEV, V. I.

"Structure of the Current Front of an Electronic-Sonic Shock Wave in a Plasma"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 3, 1973, pp 449-455

Abstract: Noting a number of devices -- the so-called "electrical pistons" -- capable of generating electrostatic shock waves, the author of this paper demonstrates theoretically the possibility of realizing electronic-sonic shock waves in such devices. Following the direction indicated by an earlier paper (R. Z. Sagdeyev, in the collection Voprosy teorii plazmy -- Problems in Plasma Theory -- "Atomizdat," vol. 4, 1964, Moscow) in which the basic characteristics of nonlinear oscillations in a plasma are investigated, the author of the present paper considers oscillations of the electronic-sonic type. Neglecting collisions occurring in the plasma, he obtains the equation for the nonlinear electronic-sonic wave and proceeds to investigate the structure of the wave front. He finds that the width of the current layer is less than the mean free path of the particles and less than the width of the wave front computed without taking into account electron inertia.

USSR

UDC: 539.121.72

VOROB'YEV, A. A., AREF'YEV, K. P., BOROV'YEV, S. A., FILEV, A. Ya., Tomsk Polytechnical Institute imeni S. M. Kirov

"Capture of Positrons by F-Centers in Tempered Crystals"

Tomsk, Izvestiya VUZov: Fizika, No 2(129), 1973, pp 141-143

Abstract: Curves of angular correlation of gamma quanta were measured in KCl and NaCl single crystals to determine the influence which tempering of colored crystals has on the process of annihilation of positrons. Angular resolution was approximately 1 mrad with a measurement accuracy of at least 3%. Crystals measuring 20x30x1 mm were tempered by cooling from 700°C on a massive copper sheet in air. The results of the experiment confirm the possibility of positron capture by color centers induced in crystals by various methods. The method of positron annihilation is apparently an indicator of color centers which are localized on dislocations and other structural defects.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SYNTHESIS AND STEREOCHEMISTRY OF C SUB10 HYDROCARBONS OF THE CIS
BICYCLO,3.3.0,OCTANE SERIES -U-
AUTHOR--(05)-AREFYEV, O.A., VOROBYEVA, N.S., MAKUSHINA, V.M., SOLODKOV,
V.K., TSEDILINA, A.L.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(2), 165-73
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, ORGANIC SYNTHESIS, CYCLOALKANE HYDROCARBON,
OCTANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3006/0937

STEP NO--UR/0204/70/010/002/0165/0173

CIRC ACCESSION NO--AP0134663

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134663

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.

1,2,DIMETHYLBICYCLO(3.3.0)OCT,2,EN,4,ONE (I) WAS PREPD. BY CONDENSATION OF 2,METHYLCYCLOPENTANONE WITH VINYLACETYLENE, DEHYDRATION OF THE CARBINOL WITH H SUB2 SO SUB4 TO II, AND FINALLY CYCLOHYDRATION WITH H SUB3 PO SUB4. BY A SEQUENCE OF REONS. OF I,

CIS,1,2,DIMETHYLBICYCLO(3.3.0)OCTANE WAS OBTAINED.

1,3,DIMETHYLBICYCLO(3.3.0)OCTANE WAS PREPD. BY DIENE CONDENSATION OF 1,FORMYL,1,CYCLOPENTENE WITH 1,3,BUTADIENE AND REON. OF

1,FORMYL,3A,6,7,7A,TETRAHYDROINDAN INTO

1,METHYL,3A,6,7,7A,TETRAHYDROINDAN, WHICH WAS OXIDIZED (KMNO SUB4) TO

1,METHYL,1,2,CYCLOPENTANEDIACETIC ACID, WHICH, AFTER HEATING WITH BAO

GAVE III. III WITH METHYL GRIGNARD AND THEN DEHYDRATION GAVE IV WHICH

AFTER HYDROGENATION GAVE THE 1,3,COMP. THE 3,7,DIMETHYLBICYCLOOCTANE

WAS OBTAINED FROM THE CORRESPONDING DIKETONE BY MEMGI, DEHYDRATION ON AL

SUB2 O SUB3, AND THEN HYDROGENATION OF THE UNSATD. COMP. MIXT. OF

2,7,DIMETHYL AND 2,8,DIEMTHYL COMPS. WERE SIMILARLY OBTAINED AS THE

1,2,DIMETHYL COMPS. THE CONFORMATIONS OF THE DIMETHYL

CIS,BICYCLO(3.3.0)OCTANES WAS DETD. FROM GAS LIQ. CHROMATOG. RETENTION

TIMES AND CALCD. B.P. DATA.

FACILITY: INST. GEOL. RAZRAB.

GORYUCH. ISKOP., MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--REACTION OF VINYLACETYLENE WITH CARBOXYLIC ACIDS UNDER THE
INFLUENCE OF CADMIUM PHOSPHATE -U-
AUTHOR--(02)-AREFYEVA, T.G., GURIN, YU.A. *A*
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3) 625-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ACETYLENE, CARBOXYLIC ACID, VINYL COMPOUND, PHOSPHATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY RELL/FRAME--1992/1527 STEP NO--UR/0366/70/006/003/0625/0526
CIAE ACCESSION NO--AP0112521
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112521

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF RCD SUB2 H (I) WITH H SUB2 C:CHC:CH GAVE SIMILAR TO 1:1 MIXTS. OF RCD SUB2 CH:CHCH:CH SUB2 AND H SUB2 C:CID SUB2 CR)-CH: CH SUB2. THE REACTIVITY OF I INCREASED IN SERIES (R GIVEN): ME SMALLER THAN ET SMALLER THAN PR, I.E. WITH THE INCREASE OF THE INDUCTIVE EFFECT OF R.

UNCLASSIFIED

Radiation Chemistry

USSR

OSANOV, D. P., PANOVA, V. P., and AREE'YEVA, Z. S., Editorial Board of Zhurnal Fizicheskoy Khimii (Journal of Physical Chemistry) of the Academy of Sciences USSR

"Experimental Basis of Age Parameters for a Mathematical Model of the Metabolism of Radioactive Strontium"

Ekspperimental'noye obosnovaniye vozrastnykh parametrov matematicheskoy modeli metabolizma radioaktivnogo strontsiya (cf. English above), Moscow, 1970, 18 pp, ill, bibliography with 10 titles (No 2883-70 Dep) (from RZh-Biologicheskaya Khimiya, No 8, 25 Apr 71, Abstract No 8F1310 Dep by authors)

Translation: The work presents the results of an experimental investigation of the rate of elimination of radioactive strontium from dog organism as a function of age. Discharge functions are determined for five age groups. A method is given for the interpolation of the discharge functions for any age. The authors consider one of the possibilities of using the results of this work in calculating doses for people of different ages.

1/1

USSR

UDC 615.21.547.665

MARKAVA, E. YA., AREN, A. K., and GERMANE, S. K., Institute of Organic Synthesis, Academy of Sciences LatvianSSSR, Riga

"Synthesis and Physiological Activity of 2,2'-Diamino-2,2'-(phenylene)-bis-indanediones-1,3"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 5, May 73, pp 30-33

Abstract: It has been shown that 2,2'-dibromo-2,2'-(p-phenylene)-bis-indanediones-1,3 react via nucleophilic halogen exchange with primary and secondary amines in anhydrous dioxane or ether to yield 2,2'-diamino-2,2'-(p-phenylene)-bis-indanediones-1,3. A series of derivatives was prepared, all compounds showing some tranquilizing action; amino-m-phenylene-bis-indanediones exhibited higher activity than the p-phenylene homologs. Compounds with the dimethylamino group in their structure were more active than comparables diethylamino derivatives. A transition from p-phenylene to m-phenylene derivatives resulted in disappearance of the analgesic activity.

1/1

USSR

UDC 632.95

AREN, A. K., FAL'KENSHTeyN, B. Yu., ZELMEN, V. N., YEGOROVA, L. V., OZOLIN', R. R., POPLAVSKAYA, N. I., and SHOFRO, E. A., Institute of Organic Synthesis, Academy of Sciences Latvian SSR

"Method of Preparing 2-(α -phenyl- α -p-fluorophenylacetyl)-1,3-indandione"

USSR Authors' Certificate No 263586, filed 14 Nov 67, published 4 Jun 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N531P).

Translation: A mixture of 4.5 g metallic Na is heated at 130-140° in 50 ml anhydrous PhMe, 45 ml anhydrous MeOH is then added dropwise to the mixture. The mass is heated on an oil bath for 1-1.5 hr with intensive stirring, evaporated, and the residue cooled to 80° and treated with 150 ml anhydrous C₆H₆ and 20 g dimethyl phthalate. A mixture of 11.25 g freshly prepared phenyl-fluorophenylacetone in 50 ml anhydrous C₆H₆ is added dropwise over the space of 1 hr to the reaction mass, with a 50 ml mixture of C₆H₅ and MeOH distilled off at the same time. Then once more a mixture of 11.25 g freshly prepared 2-phenyl-2-p-fluorophenylacetone and 4 g anhydrous dimethyl phthalate in 50 ml anhydrous C₆H₆ is added dropwise, with 50 ml of solvents being distilled off. During condensation oil bath temperature is 118-120°. After components are mixed, the mixture is stirred for 10 hr at 118-120°.

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USSR

Aren, A. K., et al., USSR Authors' Certificate No 263586, filed 14 Nov 67, published 4 Jun 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N531P)

evaporated at 11-15 mm; the oily residue is treated with 800 ml cold water, and heated with stirring. The layer of water is decanted, and the crystalline residue treated analogously three or four times with water until it dissolves completely. Combined water layers are treated with 40 ml dilute HCl (acid, 1:1) until the reaction of the medium is acid, are stirred, kept for ~12 hr, and decanted. The amorphous residue is treated with 80 ml hot iso-PrOH and stirred. A yellow precipitate is filtered off, which is rinsed two or three times with 10 to 15 ml portions of cold iso-PrOH, to yield 15 g (42.5%) 2-(α -phenyl- α -p-fluorophenylacetyl)-1,3-indandione (I), melting point 121-5°. The isopropyl mother liquors are diluted with 100-150 ml water and decanted; the oily residue is treated with 5 ml HCL (acid, 1:1), to yield, as described above, an additional 3 g (8.5%) I. I possesses a broad spectrum of zoocidal action.

2/2

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USSR

UDC 615.21:547.665

AREN, A. K., BERZINYA, I. A., GEYTA, L. S., and GERMANE, S. K., Institute of Organic Synthesis Ac. Sc. Latvian SSR

"2-[γ -(N-Arylpiperazino)propyl]-2-arylindandiones-1,3 and -indandiol-1,3"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 12, Dec 70, pp 6-10

Abstract: In continuation of the search for neuro- and psychotropic agents, a series of title compounds was synthesized. To 2.3 g sodium dissolved in 200 ml of n-propanol, 22.5 g 2-phenylindandione-1,3, 24 g 1,3-dibromopropane, and 14.9 g NaI are added and refluxed for 8-10 hrs. The solution is then cooled, poured into water, the separated oil phase is dissolved in benzene, washed with sodium bicarbonate solution and dried over magnesium sulfate. Benzene is evaporated and the 2-(γ -bromopropyl)-2-phenylindandione-1,3, m.p. 88° is isolated by chromatography on an alumina column. Analogously 2-(γ -chloropropyl)-2-(p-methoxyphenyl)-indandione-1,3, b.p. 160-70°/10⁻² mm Hg, and 2-(γ -hydroxypropyl)-2-phenylindandione-1,3, m.p. 78° were prepared. To convert these intermediates to 2-[γ -(N-arylpiperazino)-propyl]-2-arylindandiones-1,3, above compounds were dissolved in benzene and respective N-arylpiperazines in benzene were added, the mixture being refluxed for 1/2

USSR

AREN, A. K., et al, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 12, Dec 70, pp 6-10

0.5-1 hr, cooled, and filtered. The precipitated hydrochloride is saturated with HCl, the product filtered, suspended in water, aqueous ammonia is added and the only product crystallized in alcohol. Pharmacological studies showed all compounds to exhibit tranquilizing activity, the most active being the m-substituted arylpiperazine derivatives. All of the indandio-1,3 derivatives exhibited toxicity which increased with the increased number of methyl groups between the diketo group and N-aryl piperazine.

2/2

- 38 -

USSR

UDC 547.665

OZOLA, E. Ya., and ~~AREN~~, A. K., "Order of the Red Banner of Labor" Institute of Organic Synthesis, Latvian SSR Academy of Sciences

"Structure of 2-Acetyl and 2-Phenacyl-2-Aryl-1,3-Indandione Monoximes"

Riga, Izvestiya Akademii Nauk Latviiskoi SSR, Seriya Khimicheskaya, No 4, 1970, pp 457-461

Abstract: 2-Acetyl- and 2-phenacyl-2-aryl-1,3-indandiones react with hydroxylamine hydrochloride in absolute ethanol in the presence of pyridine to form the corresponding monoximes of the carbonyl group in the side chain. Similarly, 2-aryl-2-acetyl-1,3-indandiones react with hydroxylamine to form the corresponding monoximes in the form of colorless crystals. The infrared spectra of the oximes contain the vibration of the β -dicarbonyl system in the 1710 and 1740 cm^{-1} region. The valence vibrations of the hydroxyl group in Nujol are shifted toward the long-wavelength side and they are diffuse. This is an indication for the presence of intermolecular hydrogen bonds in the solid state. In dichloroethane solutions, this absorption band is found at 3560 cm^{-1} . The ultraviolet spectra of the oximes are similar to those of the triketones. Both types of spectra were studied in detail for a number of

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USSR

OZOLA, E. Ya., and AREN, A. K., Izvestiya Akademii Nauk Latviiskoi SSR, Seriya Khimicheskaya, No 4, 1970, pp 457-461.

oximes. Evidence was found that the 2-phenacyl-1,3-indandione oximes exist in a cyclic 6,5(CO)-benzoylene-6-hydroxy-1,3-oxazine form.

2/2

- 33 -

USSR

UDC 543.80:543.253.

VEGNERS, V. YA., STRADYN', YA. P., OZOL, YA. YA., and ~~ADAMS, A. K.~~
Riga Polytechnical Institute, Riga, Latvian Sovnarkhoz

"Characteristic Qualities of the Wave of Electrochemical Splitting of
the C-N Bond in 2-Alkylamino-2-alkylindandiones-1,3"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya,
No 2, 1970, pp 164-169

Abstract: The goal of this study was the refinement of the polarographic reduction of 2-aminoindandiones-1,3 (I), and attention was directed particularly to the characterization of the wave obtained on electrochemical splitting of the C-N bond. The properties of the first wave of polarographic reduction were studied. It was determined that (I) type of compounds give a two electron polarographic wave of the C-N⁺ bond splitting in aqueous alcohol solutions at pH range 2-12; the height of this wave was limited by the rate of diffusion of depolarizator molecules in the entire pH range studied. In strongly alkaline medium the wave of the C-N⁺ bond splitting disappears because of the

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USSR

VEGNERE, V. YA, et al, Izvestiya Akademii Nauk Latvyskoy SSR, Seriya Khimicheskaya, No 2, 1970, pp 164-169

chemical decomposition of the molecules of aminoindandiones in solution. The C-N⁺ bond splitting wave is generated by salts as well as by free bases. When bases enter into the electrode reactions their molecules are first protonated on the electrode surface and the corresponding waves are of quasidiffusive character.

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--2, ALPHA, PHENYL, ALPHA, P, FLUOROPHENYL, ACETYL, 1, 3, INDANDIONE -U-

AUTHOR--(05)-AREN, A.K., ZELMEN, V.N., OZOLIN, R.R., SHAFRO, E.A.,
FALKENSHTeyN, B.YU.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,586

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE DERIVATIVE, AROMATIC KETONE, CHEMICAL PATENT, CHEMICAL
SEPARATION, FLUORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1587

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135228

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0135228

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE TITLE PRODUCT IS SEPD. BY
SUCCESSIVE TREATMENT WITH H SUB2 O, A MINERAL ACID, AND ISOPROPYL ALC.

FACILITY: INSTITUT ORGANICHESKOGO SINTEZA AN LATVIYSKOY SSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--UNSATURATED ACYLINDANDIONES. V. CONDENSATION OF 2, ACETYL,
1,3, INDANDIONES WITH NITROBENZALDEHYDES -U-
AUTHOR--GEYTA, L., GRINVALDE, A., ARENS, A. A
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 99-102
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CONDENSATION REACTION, BENZENE DERIVATIVE, AROMATIC KETONE,
AROMATIC NITRO COMPOUND, PIPERIDINE, BENZALDEHYDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1062 STEP NO--UR/0464/70/000/001/0099/0102
CIRC ACCESSION NO--AP0104460
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. 2, ACETYL, 1, 3, INDANDIONE WAS CONDENSED WITH O-, M-, AND P-NITROBENZALDEHYDE IN PIPERIDINE TO GIVE O, M-, AND P-NITROCINNAMOYLPERINAPHTHO, 1, 3, INDANDIONE (I), M. 200-2DEGREES, 211-12DEGREES, AND 276DEGREES (ACOH), RESP. BESIDES I, 18.3PERCENT II M. 193-4DEGREES (ACOH) WAS ISOLATED.

UNCLASSIFIED

USSR

UDC 616.001.4-08

SHCHUR, V. V., MAKEYEVA, N. S., ARENBERG, A. A., GOL'TS, M. V., and NIKANOROV, YU. A., Fryazino Central Municipal Hospital

"Use of a Laser to Treat Wounds"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, No 6, 1972, pp 85-89

Abstract: A helium-neon laser (output power 10 milliwatts, wavelength 6328 Å) was used to treat 25 patients with persistent non-healing wounds and trophic ulcers of the lower extremities that had previously shown no response to conservative treatment, physical therapy, or surgery. The course of treatment included 12 to 25 daily sessions with the initial exposure of 20 to 30 seconds gradually increased to several minutes. The results showed complete healing of the wounds with the formation of a rather elastic connective-tissue scar and epithelization in 19 and marked contraction of the wound area in 4. In the great majority of patients, active growth of granulations in the wound and start of epithelization at the margins were evident after 3 to 5 sessions. Neither the microflora of the wound nor the main hematological indexes (except a slight decrease in the WBC after 70 to 10 procedures and near normalization by the end of treatment) were significantly affected by the laser radiation. Follow-up of 16 patients for 3 to 7 months revealed no recurrences of the wounds.

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USSR

UDC 621.382.2.029.64

PROKHOROV, E. D., and ARENDAR', V. N.

"High Efficiencies of Gunn Diodes in the Hybrid Mode of Operation"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1301-1303

Abstract: One practical method of improving the efficiency of Gunn-diode oscillators is to use a complex voltage waveform to maximize the first harmonic of the current through the diode. It is shown that when second and higher harmonics are present in the signal, efficiencies of 30-32 percent can be achieved in the hybrid mode, as well as in domain modes and in the mode of limited accumulation of space charge. When a second harmonic is present in the voltage waveform, lower overvoltages and lower frequencies are required for a transition to the hybrid mode of operation than those necessary in the case where only the first harmonic is present.

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USSR

UDC 621.382.2.029.64

PROKHOROV, E. D., and ARENDAR', V. N.

"On Operating Conditions of Gunn Diodes in the Hybrid Mode"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1230-1236

Abstract: It is shown that a gallium arsenide Gunn diode may be transferred to the hybrid mode of operation by an increase in the supply voltage. The conditions for transition to the hybrid mode are defined. It is shown how the overvoltages across the diode necessary for hybrid operation depend on carrier concentration and frequency: overvoltage increases with concentration and decreases with frequency. It is pointed out that the electrical strength of GaAs limits the transition of diodes based on this material to the hybrid mode of operation. A hybrid mode with high efficiency is completely feasible when the ratio of carrier concentration to frequency is $5 \times 10^4 - 1 \times 10^5$. At higher ratios, the hybrid mode is less efficient.

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UDC 621.382.2

USSR

PROKHOROV, E. D., ARENDAR', V. N.

"Analysis of Operation of Gunn Diode in Circuit With Inductance"

Analiz raboty dioda Ganna v tsepi s induktivnost'yu (cf. English above. Editorial Board of the Journal "Radiotekhn. i elektronika," AS, USSR), Moscow, 1970, 9 pp, ill., bib. 4 titles [No 2513-71 DEP] from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B122 DEP)

Translation: A quantitative analysis is made of the oscillation period T and the efficiency of a Gunn semiconductor diode loaded at resistance R_L with an inductance L connected in parallel. For the computation, the dynamic characteristics of a semiconductor diode with $n_0 L > 10^{12} \text{ cm}^{-3}$ were selected. Annotation.

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71

USSR

UDC 615.216.5:547.629.2

ARENDAK, A. P., SKOLDINOV, A. P., KHARKEVICH, D. A., and CHERNYKH, N. A.,
Scientific Research Institute of Pharmacology, Academy of Medical Sciences USSR,
Moscow

"Studies in the Cyclobutanedicarboxylic Acid Series. VII. Synthesis and
Curareform Activity of Bioquaternary Salts of Alkamine Esters of p,p'-Substi-
tuted α -Truxillic Acids"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 9, Sep 72, pp 5-9

Abstract: The article describes the synthesis and testing (in the form of
dimethiodides) of analogs of anatruxonium containing in the phenyl nuclei sub-
stituents differing in their electronic nature, viz. p,p'-dinitro, p,p'-dimethoxy
and p,p'-dihydroxy groups. Pharmacological tests of the resultant compounds
showed that they all possess pronounced curareform activity. The most effective
curareform agent is anatruxonium. Replacement by the nitro, methoxy or dioxy
group reduces the myoparalytic activity.

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USSR

UDC 615.216.5:[547.586+547.551.2

ARENDAKOV, A. P., SKOLDINOV, A. P., SMIRNOVA, N. V., KURBYEVICH, D. A.,
TSVETKOVA, G. I., and SPIDRYAN, M. I., Scientific Research Institute of
Pharmacology, Acad. Med. Sc. USSR, Moscow, I Moscow Medical Institute named
I. M. Sechenov

"Curareform Activity of the Monoquaternary Salts Containing the Adamantyl
Radical at the Nitrogen Atom"

Moscow, Khimiko-Farmatsevticheskii Zhurnal, Vol 6, No 4, Apr 72, pp 8-13

Abstract: A series of methiodides of alkylammonium salts of l-carnitine and cinnarizine
acids has been synthesized in an attempt to lower the depolarizing and curareform
blocking activity of the parent compound. Replacing a methyl group at the
nitrogen atom with an 1-adamantyl group did indeed change the depolarizing
blocking of parent compounds to nondepolarizing activity; at the same time the
curareform activity dropped 200-300 fold. Changes in the length of the alkyl
radical between the acid group and nitrogen atom as well as substituents on the
aryl ring showed no effect on this activity. The modification due to the
adamantyl radical appeared to be general in nature. It is proposed that this
specificity is due to the high lipophilic property of the adamantyl radical
rather than to its bulk alone.

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AA0039845

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, -

3/70

237722 BIOCHEMICAL TESTING OF WASTE WATER is more reliable and more accurate. Vessel 1 is connected to the compensating bottles 2 and 3 through an electrolyser 4 and a pressure regulator 5. The regulator is connected with a level indicator 6, an amplifier 7, a relay 8 and a recorder 9. 1 litre of waste water (sample) with active sludge is placed in the vessel. A container 10 with 30% solution of KOH is placed to absorb carbon dioxide. Oxidising of organic matters accompanies the demand for diluted oxygen and subsequent diffusion of it from gas 11 to a liquid. The pressure of gas increases due to the fact that

AUTHORS: Arendt, G. A.; Veprintsev, V. I.; Kalyagin, A. M.;
Krikun, V. Ya.; Livshits, L. S.; Marchenko, I. A.;
Morgulis, L. A. and Sokolov, G. I.

19741229

AA9039845

electrolyser 4 produces oxygen by the electrolysis of an anode A. When it is equal to the pressure in the bottles 2 and 3, the electrolyser is automatically cut-off. The current to the electrolyser is regulated by a resistance R and the duration of the cycle is controlled by a timer 12. Hydrogen from cathode R is absorbed in 13. Mixing of sample is done magnetically 14 and the complete assembly is submerged in a thermostatically controlled water bath 15. 17.4.67. as 1149716/23-26. A.A KUZMIN et alia Water Supply Canalisation Hydrotechnical Plate and Hydrogeological Eng. Res. Inst. (7.7 69.) Bul.3/12.2.69. Class 85b. Int.Cl. C02b.

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Spetsial'noye Konstruktorskoye Byuro "Gaztroymashina"

19741230

USSR

UDC: 621.396.6

ARENKOV, Anatoliy Borisovich

BOOK

PECHATNYYE I PLENOCHNYYE ELEMENTY RADIOELEKTRONNOY APPARATURY (Printed-
-Circuit and Thin-Film Elements in Radio Electronic Equipment), Leningrad,
"Energiya", 1971, 316 pp, illus, biblio, 20 000 copies printed

The basic problems of calculating, designing and making printed
and integrated hybrid film circuits used in radio electronic equipment
are presented in the book in systematized form.

The book is written as a text for technical schools in the appro-
priate fields. It may also be of use to students in institutes and to an
extensive class of engineering and technical workers engaged in designing,
making and using radio electronic equipment.

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USSR

ARENKOV, A. B., PECHATNYYE I PLENOCHNYYE ELEMENTY RADIOELEKTRONNOY APPARATURY, Leningrad, "Energiya", 1971

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USSR

ARENKOV, A. B., PECHATNIYE I PLENOCHNYE ELEMENTY RADIOELEKTRONNOY APPARATURY, Leningrad, "Energiya", 1971

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GEYTA, L. S., DALBERGA, I. E., MEDNE, K. K., ARENS, A. K., Institute of Organic Synthesis, Academy of Sciences Latvian SSR, Order of the Red Banner of Labor

"Study of Unsaturated Acylindandiones. Part 6. Sulfoderivatives of 2-Cyannamoylindiones-1,3"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, no 5, 70, pp 571-575

Abstract: Sulfuration of 2-cyannomoylindandiones-1,3 (CI) has shown that the 2-sulfoacid CI which is formed by treating CI with dioxanosulfotrioxide is unstable; however, when sulfurated in a benzene ring, by treatment with chlorosulfonic acid, CI becomes a stable compound. Sulfochlorides and sulfonamides have been synthesized and their infrared spectra studied. The tuberculostatic activity of CI tested on strains of microorganisms H₃₇Kv, Ravenel, Vallee u D has shown their low activity. The minimal inhibiting concentration of the growth of tubercular cultures by CI sulfoderivatives fluctuates between 1.7 mcg/ml and > 50.00 mcg/ml, while tubazid inhibits microbacterial growth in concentrations of 0.10 to 22.46 mcg/ml. Tables 1/2

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GEYTA, L. S., et al, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, no 5, 70, pp 571-575

in the original article provide data on infrared spectra and tuberculostatic activities of various Cl sulfoderivatives, their formulas, melting points, composition (%), and yields (%).

2/2

USSR

UDC 620.193.01

ARENSEBURGER, D. S., KOPYLOVA, V. P., PEREPELKIN, A. V., Institute
of Problems of Material Science, Academy of Sciences UkrSSR

"Porous Metal-Ceramic Titanium-Based Alloys"

Poroshkovaya Metallurgiya, No 1, 1972, pp 48-52.

Abstract: Problems of the production and corrosion resistance of titanium alloys with molybdenum, chromium, and palladium are studied. A preliminary estimate is presented of the possibility of producing complexly alloyed powders of these alloys by hydrogenation and grinding of the alloys. Metal ceramic alloys such as $Ti_{20}Mo_5Cr_{0.2}Pd$, sintered at $1,400^{\circ}C$, have high resistance to hot and concentrated solutions of hydrochloric and nitric acid and can be used as a basis for the production of permeable materials. Hydrogenation and subsequent dehydrogenation of sintered specimens of multicomponent alloys of titanium allow the production of coarsely ground, complexly alloyed powders.

1/1

USSR

UDC 669.295

MAL'KO, P. I., ARENSBURGER, D. S., PUGIN, V. S., NEMCHENKO, V. F., and L'VOV, S. N., Institute of Problems of Material Science, Academy of Sciences Ukr SSR, Kherson State Pedagogical Institute imeni N. K. Krupskaya

"Thermal and Electrical Properties of Porous Titanium"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 70, pp 35-38

Abstract: A study was made of the dependence of the coefficient of thermal conductivity, the thermal expansion, the thermoelectromotive force, and the resistivity of titanium on 0-50% porosity in the interval from room temperature to 1200° C. Thermal conductivity and electrical conductivity decreased with an increase in porosity. It was not possible to apply formulas of generalized conductivity for the determination of the dependence of thermal conductivity and electrical conductivity on porosity. This is explained by the coarseness of grain size of the initial powder (1-0.1 mm).

1/1

USSR

UDC 66.067.12

ARENSBURGER, D. S., PUGIN, V. S., and FEDORCHENKO, I. M., Institute of Problems of Material Science, Academy of Sciences, Ukrainian SSR

"Technology of Production and Properties of Porous Titanium-Molybdenum Alloy Materials"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 39-42

Abstract: The alloy titanium-30% molybdenum has been found to be highly corrosion resistant in hydrochloric and sulfuric acids at high temperatures. Therefore, this alloy was used in experiments on the production of porous permeable materials. The technology of manufacture and properties of porous titanium materials of this alloy, designed to operate in hot acid solutions, were studied. A technology was developed for diffusion saturation of titanium powders with molybdenum, allowing the production of a corrosion-resistant coating on the surface of titanium particles. The porous permeable specimens manufactured of titanium powder which had been diffusion saturated with molybdenum also have high corrosion resistance and can be recommended for use in hot solutions of non-oxidative acids.

1/1

Corrosion

USSR

UDC 620.193.01

ARENSBURGER, D. S., PUGIN, V. S., BRYNZA, A. P., KOLONOYETS, G. G., and PATRUSHEVA, A. G., Dnepropetrovsk State University, All-Union Scientific Research and Design Institute for Titanium, Zaporozhe, Institute of Problems of Material Science, Academy of Sciences UkrSSR

"The Corrosion Behavior of Titanium Cermets in Mineral Acid Solutions"

Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 74-80

Abstract: Porous cermet materials having developed surfaces are subject to corrosion both externally as well as internally, which causes a deterioration in the physical-chemical properties. Study was made of the corrosion resistance of titanium cermets in hydrochloric and sulfuric acids solutions at temperatures of 20-80°C. The samples were prepared from titanium powder with a particle size range of $-0.25 + 0.1$ mm and $-0.18 + 0$ mm. The titanium powders were prepared by hydrogenation with subsequent degassing of the melt and by electrolytic refining of the waste titanium sponge. One set of samples was pressed under a pressure of 1.5 T/cm² and sintered at 1150°C in pure argon for two hours. The other samples were sintered in vacuum at 1100°C for one hour. The specific surfaces of the 20% and 40% porous samples were determined and found to be 0.17 and 0.455 m²/g, respectively.

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ARENSBURGER, D. S., et al., Poroshkovaya Metallurgiya, No 4(100), 1971,
pp 74-80

Corrosion tests with sulfuric acid (5-91%) were carried out by incubating the samples at 40-80°C for 4-5 hours and at 20-30°C for 12-14 hours. Velocity of corrosion was found to be independent of time. A curve of the relation of the velocity of corrosion to acid concentration shows two maxima which correspond to 20 and 78% sulfuric acid; a minimum occurs at 50-60% sulfuric acid while with concentrations above 78%, the velocity decreases significantly. Titanium cermets have little stability in sulfuric acid and the use of nitric acid as an inhibitor gave almost complete protection.

Titanium cermets were stable at 20°C to 3% HCl; at increased concentrations, the corrosion increased rapidly. Comparison of results with both hydrochloric and sulfuric acids showed that the velocity of corrosion is inhibited by the presence of the Cl⁻ ion and activated by the SO₄⁼ within a fixed time. At increased acidities, this is reversed and can be explained by the fact that the titanium sulfate which is deposited on the surface as a corrosion product is insoluble and prevents further degeneration.

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USSR

APENSBURGER, D. S., Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Sinterability of Titanium Powder"

Kiev, Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 27-31

Abstract: The sintering activation energy is determined for porous briquets of reduced titanium powder with particles measuring 10 microns. The calculations are based on kinetic curves of the change in porosity during isothermal sintering. Specimens with a diameter of 10 x 10 mm and porosity of $28.0 \pm 0.5\%$ were sintered at temperatures of 1273, 1373, and 1473°K. The sintering temperature was reached in 2 minutes, and cooling after sintering to 673°K was done in 1 minute. The activation energy was determined by two methods which are described in detail. It was found that the sintering process consists of two stages: a nonstationary stage with a high rate of sintering, and a stationary stage where the sintering rate is determined by volumetric diffusion. With respect to order of magnitude, the activation energies for sintering of titanium briquets are the same as for chromium, tungsten, molybdenum, and some other metals, amounting to 40-50% of the self-diffusion activation energy.

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ARENSBURGER, D. S., Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 27-31

However, in the initial stage of low-temperature sintering (1273 and 1373°K), the sintering activation energy is only 20-25% of the self-diffusion activation energy. This may be due to the dissolution of oxides in the outer layers of the powder particles, which increases surface defects, or may be caused by flow by the mechanism of activated slipping of dislocations.

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USSR

~~ABSENSENGER~~, D. S., PUGIN, V. S., and FEDORCHENKO, I. M., Institute for Problems of Material Science, Academy of Sciences Ukrainian SSR

"Investigation of Titanium-Molybdenum Powdered Metal Alloys"

Kiev, Poroshkovaya Metallurgiya, No 4, Apr 70, pp 32-38

Abstract: The physicochemical and physicommechanical properties of powdered metal alloys based on titanium and molybdenum (containing up to 50 wt. % Mo) are reviewed, and production technology is discussed. Molybdenum powder (type MCh) with a particle size of $5-7 \mu$, and titanium calcium hydride, with a particle size of 56μ , were used in the investigation. Specimens, $40 \times 5 \times 4$ and $60 \times 5 \times 5$ mm and porosity $30 \pm 1.5\%$, containing up to 50 wt. % molybdenum, were sintered in argon at $500-1400^\circ \text{C}$. The holding time at the sintering temperature was 2 hrs and the sintered specimens were cooled from 0.4 to 12 hrs, which corresponds to a cooling rate of 3,000 and 100 deg/hr. Data on the shrinkage, porosity, and specific electrical resistance of compacts, depending on the content of molybdenum and sintering temperature, are presented. A diagram of mutual dissolution of titanium and molybdenum during sintering of alloy Ti33Mo and corrosion resistance curves of titanium-molybdenum alloys as a function of alloy composition are shown. The corrosion resistance of alloys with up to 1/2

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ARENSEBURGER, D. S., et al, Poroshkovaya Metallurgiya, No. 4, Apr 70, pp 32-38

50 wt. % Mo in 20% HCl and 40% H₂SO₄ shows that powdered metal alloys of the composition Ti₃₃Mo, sintered in argon at a temperature of 1200°C, possess the highest corrosion resistance. powdered metal alloys of this composition are recommended for the production of porous permeable materials from titanium-molybdenum powders.

2/2

1/2 039 UNCLASSIFIED PROCESSING DATE--20NOV70
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AUTHOR--(03)-ARENSBURGER, D.S., PUGIN, V.S., FEDORCHENKO, I.M.
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CIRC ACCESSION NO--AP0125924

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYSIOCHEMICAL AND PHYSICOMECHANICAL PROPERTIES OF POWDERED METAL ALLOYS BASED ON TITANIUM AND MOLYBDENUM (CONTAINING UP TO 50 WT. PERCENT MO) ARE REVIEWED, AND PRODUCTION TECHNOLOGY IS DISCUSSED. MOLYBDENUM POWDER (TYPE MCH) WITH A PARTICLE SIZE OF 5-7 MU, AND TITANIUM CALCIUM HYDRIDE, WITH A PARTICLE SIZE OF 56 MU, WERE USED IN THE INVESTIGATION. SPECIMENS, 40 TIMES 5 TIMES 4 AND 60 TIMES 5 TIMES 5 MM AND POROSITY 30 PLUS OR MINUS 1.5PERCENT, CONTAINING UP TO 50 WT. PERCENT MOLYBDENUM, WERE SINTERED IN ARGON AT 500-1400DEGREESC. THE HOLDING TIME AT THE SINTERING TEMPERATURE WAS 2 HRS AND THE SINTERED SPECIMENS WERE COOLED FROM 0.4 TO 12 HRS, WHICH CORRESPONDS TO A COOLING RATE OF 3,000 AND 100 DEG-HR. DATA ON THE SHRINKAGE, POROSITY, AND SPECIFIC ELECTRICAL RESISTANCE OF COMPACTS, DEPENDING ON THE CONTENT OF MOLYBDENUM AND SINTERING TEMPERATURE, ARE PRESENTED. A DIAGRAM OF MUTUAL DISSOLUTION OF TITANIUM AND MOLYBDENUM DURING SINTERING OF ALLOY TI33MO AND CORROSION RESISTANCE CURVES OF TITANIUM MOLYBDENUM ALLOYS AS A FUNCTION OF ALLOY COMPOSITION ARE SHOWN. THE CORROSION RESISTANCE OF ALLOYS WITH UP TO 50 WT. PERCENT MO IN 20PERCENT HCL AND 40PERCENT H SUB2 SO SUB4 SHOWS THAT POWDERED METAL ALLOYS OF THE COMPOSITION TI33MC, SINTERED IN ARGON AT A TEMPERATURE OF 1200DEGREESC, POSSESS THE HIGHEST CORROSION RESISTANCE. POWDERED METAL ALLOYS OF THIS COMPOSITION ARE RECOMMENDED FOR THE PRODUCTION OF POROUS PERMEABLE MATERIALS FROM TITANIUM MOLYBDENUM POWDERS. FACILITY: INSTITUTE FOR PROBLEMS OF MATERIAL SCIENCE, ACADEMY OF SCIENCES UKRAINIAN SSR.

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1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF THE ACTIVATION ENERGY IN THE SINTERING PROCESS OF POROUS PREFORMS OF TITANIUM POWDER WITH PARTICLE DIMENSIONS OF ABOUT 10 MICRONS. IT IS FOUND THAT THE SINTERING PROCESS PROCEEDS IN TWO DISTINCT STAGES: (1) UNSTEADY STAGE WITH A HIGH COMPACTION RATE AND (2) STEADY STATE STAGE DURING WHICH COMPACTION RATE IS DEPENDENT ON THE VOLUME DIFFUSION. LOW VALUES OF THE ACTIVATION ENERGY DURING THE FIRST COMPACTION STAGE ARE SUGGESTED TO BE DUE TO THE SOLUTION OF OXIDES IN THE SURFACE LAYER OF TITANIUM PARTICLES.

UNCLASSIFIED